

## **SECTION 6**

### **6.46 ELECTRIC PUMP MOTORS:**

All motors shall be polyphase squirrel-cage rotor induction motors. Each motor shall be capable of delivering adequate starting and running torque sufficient to meet all the electrical, and operating conditions of the installation, and shall conform to MS-25. Motor sizing shall not make use of the service factor. Each motor shall be rated for direct across-the-line, full voltage, starting. Each motor shall be controlled by a motor starter which employs a method of starting consistent with the requirements of the electric power utility, the plant power system, and consideration of extended motor life and reliability and acceptable voltage drop during starting. Each starter shall be equipped with motor protective devices in the form of: overload relays; phase reversal, phase loss, and under voltage relay trips; ground fault detection; motor winding and bearing over temperature alarm and trip; and any other such functions as may be required by Denver Water for a particular installation.

All pump motor installations shall maintain an overall plant power factor between 0.9 and 1.0 lagging under normal operating load. If necessary, each motor shall be equipped with power factor correcting capacitors, as required, in order to meet this.

Each motor shall be designed and constructed to operate, without damage in reverse rotation at the maximum speed obtainable with the connected pump acting as a turbine under the conditions given by the approved hydraulic system design.